UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,222	06/19/2006	Heinz Schicht	283892US0PCT	7864

22850 7590 11/13/2008

OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
ROBINSON, LAUREN E	

ART UNIT	PAPER NUMBER
1794	

NOTIFICATION DATE	DELIVERY MODE
11/13/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No.	Applicant(s)	
	10/562,222	SCHICHT ET AL.	
	Examiner	Art Unit	
	LAUREN ROBINSON	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 July 2008*.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,7,8,10-14,16-21,23 and 24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,7,8,10-14, 16-21,23 and 24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 11 and 24 are objected to because of the following informalities: The claims recite materials such as ZnSnSBO and ZnrO. The examiner notes that according to the applicants' disclosure, the "B" above should be lower cased and the ZnrO should be ZnZrO. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are rejected due to it being unclear as to whether the composite is intended to include all of the combinations or whether only one combination is needed. Also, it is unclear whether each material on opposite sides of the backslash should occur in the claimed order and because it is unclear what subscripts r, s, t, x and u are as they are undefined.

It is unclear due to the applicants' disclosure including multiple embodiments wherein none of which include all the combinations and when one of the claimed combinations does occur, it does not have to be in the order as claimed.

For applying prior art, the examiner interprets the claim to mean that only one combination is needed and that the order does not have to be as claimed but merely that the material combination must be present.

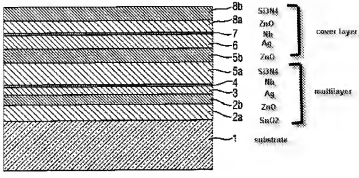
Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims1, 7, 11-14, 16-21 and 23-24 rejected under 35 U.S.C. 102(b) as being anticipated by Boire et al. (US PN. 6,045,896).

Regarding claims 1 and 21: Boire et al. teach a composite product comprising a transparent substrate and a multilayer system comprising a functional layer that reflects solar radiation and therefore, the multilayer has a solar control function (abstract, Figures). The multilayer stack is also comprised of a Si3N4 (Col. 5, lines 25-32) which corresponds to a layer C according to the applicants' disclosure and this layer is surmounted by a cover layer (all). The following structure is taught (Col. 9, lines 35-67 and Col 10, all).



The reference teaches that the ZnO comprising the cover layer is a layer that aids in protecting the functional layer beneath (Col. 7, lines 20-40). Therefore, the cover layer is oxide based and provides mechanical protection. Boire et al. also teach that the taught ZnO layers can actually comprise a mixture of ZnO and TiO2 (Col. 7, lines 20-30) **(Claim 1)**.

The examiner notes that for the layers to be present in the order taught within the reference, one would recognize that a process of applying said layers would be inherent **(Claim 21)**.

Regarding claims 7 and 23: Since it was discussed that the ZnO layer can be a mixture of ZnO and TiO2, one would know that the mixture will inherently produce a ZnTiOx compound when the materials are combined **(Claims 7 and 23)**.

Regarding claims 11 and 24: Also, Boire et al. teach that the above Nb layer within the cover layer as illustrated can be ZnO such as in layer 7 and that TiO2 can replace ZnO such as in layer 8a (Col. 8, lines 7-25 and Col. 7, lines 19-30). Therefore, the reference

teaches that the cover layer can comprise a superposition of oxide layers including a combination of ZnO/TiO2 meeting applicants' claim **(Claims 11 and 24)**.

Regarding claim 12: The oxide layer surmounting, covering and protecting the multilayer coat can have a thickness of 0.5 to 20nm (Col. 7, lines 30-35) **(Claim 12)**.

Regarding claim 13: The reference teaches that the above layer C (Si3N4) can be a mixture of Si3N4 and AlN (Col. 5, lines 25-31). Therefore, this Si3N4 layer comprises another metallic element meeting applicants' claim 13 **(Claim 13)**.

Regarding claim 14: The Si3N4 layer C layer can have a thickness of between 20 and 50nm (Col. 5, lines 38-41) **(Claim 14)**.

Regarding claim 16: Also, the functional layer within the reference is the above Ag layer (Col. 3, lines 30-35) making the layer metallic based and meeting applicants' claim **(Claim 16)**.

Regarding claim 17: The reference teaches that the barrier layers, which they teach are Si3N4 layers (Col. 5, lines 26-35) such as the one in layer 8b above can be surmounted by an oxide layer such as ZnO and that ZnO can be the last layer in the stack (Col. 7, lines 20-40). Therefore, this teaching would produce a final layer of ZnO above the 8b layer above and thereby produce a final layer sequence of ZnO/Si3N4/ZnO **(Claim 17)**.

Regarding claim 18: Also, the reference teaches that in a stack such as the one above, the SnO2/ZnO sequence can be replaced by a Si3N4/ZnO sequence (Col. 8, lines 9-12) and as discussed above, Nb layers can be ZnO. Therefore, using the structure above

this would correspond to the composite comprising a Si3N4/ZnO/Ag/ZnO/Si3N4/cover layer sequence **(Claim 18)**.

Regarding claims 19-20: The taught composite forms a glazing **(Claim 20)** assembly and maintains its properties after heat treatment (abstract) **(Claim 19)**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being obvious over Boire et al. (US PN. 6,045,896) in view of Anderson et al. (US Pub. No. 2001/0031365).

Boire et al. teach the applicants' invention of claim 1. However, they are silent regarding the mixed ZnTiOx layer being additionally doped or a ZrO2 having an additional metal and then being doped.

Regarding claim 8: Although Boire et al. are silent regarding the mixed ZnTiOx layer being doped with one of the metals claimed in claim 8, this limitation would have been obvious to one of ordinary skill in the art.

In particular, Anderson et al. teach a transparent substrate with a solar control multilayer stack applied thereon (title). They teach that metal oxide layers in such a stack such as ZnO can be doped with metal such as Al to provide the stack with antistatic properties which is well known in the art (0054).

Boire and Anderson disclose analogous inventions related to a transparent substrate with a multilayered composite stack comprising dielectric oxide layers thereon. From Anderson, it is the examiner's position that one of ordinary skill would recognize that if an antistatic function was desirable for the composite to be provided with an antistatic property, they could dope the layers with a metal according to Anderson. As such, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Boire et al. to include that the dielectric layers including the ZnO layers of Boire including the ZnO/TiO2 mixed layer can be doped with metals such as Al in order to provide the stack with antistatic properties **(Claim 8)**.

Regarding claim 10: While Boire et al. does not teach the cover oxide layer being a ZrO2 that can include an additional layer and then further be doped according to claim 10, the examiner believes that these limitations would also be obvious.

For example, Anderson et al. illustrates that ZnO and ZrO2 are functional equivalents (0036) and therefore, one would recognize that ZrO2 can be used and treated in the same manner as ZnO within similar solar control composite stacks on a transparent substrate. As such, it is the examiner's position that one would recognize that ZrO2 can be used in place of the ZnO layers and be treated in the same manner as both would have the same functional properties. Therefore, since Boire teaches that the ZnO layers can be mixtures with a TiO2 and it was modified above that the layer can be doped, one would see that a ZrO2 layer can be produced having a metal Ti therein and then be doped with Al to provide antistatic properties. As such, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Boire et al. to

include that a ZrO2 layer can be mixed with Ti and be doped with Al to function as a dielectric layer according to the ZnO of Boire and provide antistatic to the stack **(Claim 10)**.

Response to Arguments

Applicant's arguments, see applicants' remarks, filed July 17, 2008, with respect to the oxide layers not being mixed oxides according to applicants' invention have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made making the present action Non-Final.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAUREN ROBINSON whose telephone number is (571)270-3474. The examiner can normally be reached on Monday to Thursday 6am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-2721284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lauren E. T. Robinson
Examiner
AU 1794

/LAUREN ROBINSON/
Examiner, Art Unit 1794

/Carol Chaney/
Supervisory Patent Examiner, Art Unit 1794